

REMARKS

SPECIFICATION

The office action requests a substitute specification because the as-filed application is not in English. Applicants submitted a certified, English-language version of the specification on August 5, 2004. Accordingly, Applicants in this response submit the enclosed substitute specification and a copy of the English-language translation with changes shown in underlining and strike-out.

The first paragraph in the translated document has been essentially moved to the Summary section of the substitute specification, where it is more appropriate. Also, the title is changed from the translation to the title that appears on the application transmittal form. The substitute specification contains no new matter.

OBJECTIONS AND REJECTIONS TO THE CLAIMS

Claims 1 – 3 have been rejected under Section 103 as obvious over either purportedly admitted prior art or United States Patent Number 4,938,461 (“Bertollo”) in view of United States Patent Number 5,050,847 (“King”). Claims 4 – 8 have been objected to.

The office action relies on the format of the claims – which are purportedly to be in Jepson format – to conclude that the content of the preamble is prior art. Applicants note that the as-filed claims, which are cancelled herein, used the phrase “characterized in that” rather than the traditional words for indicating Jepson format: “the improvement comprising.” Without acquiescing to the appropriateness of the conclusion regarding the prior art effect of the as-filed claim structure, Applicants in this response cancel the existing claims 1-8 and submit new claims 9-17 in customary U.S. (non-Jepson) format. Applicants further submit that all limitations in the pending claims are entitled to consideration – that is, the invention and its structure as a whole is entitled to consideration -- when determining the patentability of the present invention.

The newly submitted claims are patentable over Bertollo in view of King because, first, Bertollo teaches away from the modifications suggested by the office action and,

second, modifying Bertollo as suggested in the office action would impermissibly change a fundamental principle of operation of Bertollo.

Bertollo discloses a refractory plug clad in a metal canister. The refractory plug has narrow passages formed by slots in the plug's outer, periphery surface. The passages in the refractory plug are enclosed by the metal canister. Bertollo expressly teaches that its passages are disposed on the periphery of its refractory plug. (*E.g.* Bertollo Abstract), and expressly states that passages on the outer surface of the refractory plug is advantageous:

Utilization of a solid impervious refractory plug with provision of a *peripheral or annular gas flow passage, between the plug's outer surface and a surrounding metallic sleeve, has been found to have certain distinct advantages.*

(Bertollo, col. 1, lns. 29-33) (italics added).

Further, in the first paragraph of the "Summary of the Invention" section, Bertollo states "[e]ach of the passages is a slot in the plug's lateral surface and is partially defined along its full length by the inside surface of the canister." (Bertollo, col. 2, lns 14 – 16). And at column 3, lines 36 to 40, Bertollo states "[a] specific feature of the present invention is the provision and particular configuration of the slots 22 in the plug 12."

King teaches an injection block having multiple-passages of circular cross section "radially disposed around a frusto-conical locus, or angled in a tangential fashion within the injection block." (King, Abstract).

In order to modify Bertollo's slots such that "projections of the exit slits onto the entry surface are offset relative to the entry slits," as recited in Applicants independent claim 9, and/or, for example, "the projections of the exit slits onto the entry surface are offset relative to the axis of the lance with a uniform direction of rotation to the entry slits," as recited in pending claim 10, Bertollo's slots could not be disposed on its refractory plug's periphery, but rather would be required enclosed within its refractory plug. In this regard, modifying Bertollo as suggested in the office action would yield, *arguendo*, a structure in which Bertollo's slots are disposed in the angled pattern of King *but Bertollo's slots would, over at least most of their height, be disposed within Bertollo's refractory plug* rather than on its peripheral surface. This result of the suggested combination can be seen by merely superimposing King's structure onto Bertollo's structure.

Bertollo, however, teaches away from having its slots internal to its refractory plug structure because of Bertollo's emphasis on the placement of its slots in the periphery of its refractory plug and the statement that such a configuration provides "distinct advantages."

Further, Bertollo makes it clear that peripheral slots are a fundamental principle of the operation of its refractory plug. For example, Bertollo explains that its slot configuration "is intended to eliminate the problem of undesirable wavy distortion of the surrounding metal sleeve when it is heated and is placed in position over the plug" (Bertollo, col. 4, lns 39 46). Accordingly, Bertollo's description of the problem to be solved and its description of its particular configuration as a "specific feature of the invention," in combination with the statements of Bertollo provided above with respect to teaching away, clearly establish the location of the slots on the periphery of the refractory plug is a fundamental principle of operation of Bertollo.

It is, of course, impermissible to change a fundamental principle of operation (that is, the location of slots on this peripheral surface of Bertollo) of a primary reference in order to establish obviousness. Accordingly, Applicants submit that it is impermissible to modify Bertollo according to the teachings of King and, therefore, the Section 103 rejection should be withdrawn.

To further emphasize the difference in structure between Bertollo and applicant's claimed invention, claim 17 recites that "the channels are spaced apart from the peripheral surface of the truncated cone-shape."

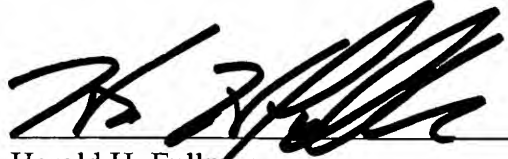
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PATENT

CONCLUSION

Based on the preceding argument, Applicants request reconsideration of the pending rejection. If the Examiner determines that a telephone conversation would further the prosecution of this case, he is invited to telephone the undersigned at his convenience.

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